

WHAT IS CLAIMED IS:

1. A rework process of patterned photo-resist layer, comprising at least:

providing a substrate with a first dielectric anti-reflective coating (DARC), a first primer and a first patterned photo-resist layer being

- 5 sequentially formed thereon;

removing the first patterned photo-resist layer and the first primer from the first DARC;

forming a second DARC on the first DARC;

forming a second primer on the second DARC; and

- 10 forming a second patterned photo-resist layer on the second primer.

2. The rework process according to claim 1, wherein the step of removing the first patterned photo-resist layer and the first primer from the first DARC further comprises the step of:

using a wet strip method to remove the first patterned photo-resist layer

- 15 and the first primer from the first DARC.

3. The rework process according to claim 2, wherein the step of using a wet strip method to remove the first patterned photo-resist layer and the first primer from the first DARC further comprises the steps of:

using an acid agent to remove the first patterned photo-resist layer and
5 the first primer from the first DARC; and

using an alkaline agent to wash the surface of the first DARC.

4. The rework process according to claim 3, wherein the acid agent comprises HF and H₂SO₄.

5. The rework process according to claim 3, wherein the alkaline agent
10 comprises NH₄OH, H₂O₂ and de-ionized water.

6. The rework process according to claim 1, wherein the step of removing the first patterned photo-resist layer and the first primer from the first DARC further comprises the step of:

using a dry strip method to remove the first patterned photo-resist layer
15 and the first primer from the first DARC.

7. The rework process according to claim 6, wherein the step of using a

dry strip method to remove the first patterned photo-resist layer and the first primer from the first DARC further comprises the steps of:

using oxygen plasma to remove the first patterned photo-resist layer and the first primer from the first DARC.

5 8. The rework process according to claim 1, wherein the first DARC is an SiON layer.

9. The rework process according to claim 8, wherein the second DARC is another SiON layer.

10 10. The rework process according to claim 8, wherein the second DARC is a SiO₂ layer.

11. The rework process according to claim 1, wherein the first DARC comprises:

a SiON layer; and

a SiO₂ layer formed on the SiON layer.

15 12. The rework process according to claim 11, wherein the second DARC is another SiON layer.

13. The rework process according to claim 11, wherein the second DARC is another SiO₂ layer.

14. The rework process according to claim 1, wherein the first primer and the second primer are both made of hexamethyldisilazane (HMDS).

5 15. A reworked semi-conductor rework process of patterned photo-resist layer, comprising at least:

providing a substrate with a first SiON layer, a first SiO₂ layer, a first primer and a first patterned photo-resist layer being sequentially formed thereon;

10 removing the first patterned photo-resist layer and the first primer from the first SiO₂ layer;

forming a second SiO₂ layer or a second SiON layer on the first SiO₂ layer;

forming a second primer on the second SiO₂ layer or the second SiON layer; and

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forming a second patterned photo-resist layer on the second primer.

16. The rework process according to claim 15, wherein the step of removing the first patterned photo-resist layer and the first primer from the first SiO₂ layer further comprises the steps of:

using an acid agent to remove the first patterned photo-resist layer and
5 the first primer from the first SiO₂ layer; and

using an alkaline agent to wash the surface of the first SiO₂ layer.

17. The rework process according to claim 16, wherein the acid agent comprises HF and H₂SO₄.

18. The rework process according to claim 16, wherein the alkaline agent
10 comprises NH₄OH, H₂O₂ and de-ionized water.

19. The rework process according to claim 15, wherein the step of removing the first patterned photo-resist layer and the first primer from the first SiO₂ layer further comprises the steps of:

using oxygen plasma to remove the first patterned photo-resist layer
15 and the first primer from the first SiO₂ layer.

20. The rework process according to claim 15, wherein the first primer and

the second primer are both made of hexamethyldisilazane (HMDS).

21. A reworked semi-conductor manufacturing process of patterned photo-resist layer, comprising at least:

providing a substrate with a first SiON layer, a first primer and a first
5 patterned photo-resist layer being sequentially formed thereon;

removing the first patterned photo-resist layer and the first primer
from the first SiON layer;

forming a second SiON layer or a second SiO₂ layer on the first
SiON layer;

10 forming a second primer on the second SiON layer or the second
SiO₂ layer; and

forming a second patterned photo-resist layer on the second primer.

22. The rework process according to claim 21, wherein the step of
removing the first patterned photo-resist layer and the first primer from the first
15 SiON layer further comprises the steps of:

using an acid agent to remove the first patterned photo-resist layer and

the first primer from the first SiON layer; and

using an alkaline agent to wash the surface of the first SiON layer.

23. The rework process according to claim 22, wherein the acid agent comprises HF and H₂SO₄.

5 24. The rework process according to claim 22, wherein the alkaline agent comprises NH₄OH, H₂O₂ and de-ionized water.

25. The rework process according to claim 21, wherein the step of removing the first patterned photo-resist layer and the first primer from the first SiON layer further comprises the steps of:

10 using oxygen plasma to remove the first patterned photo-resist layer and the first primer from the first SiON layer.

26. The rework process according to claim 21, wherein the first primer and the second primer are both made of hexamethyldisilazane (HMDS).

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